



ATTY. DOCKET NO. VOY/026

Applicant: Galarza et al.

Art Unit: 2663

Serial No.: 09/710,718

Examiner: Min Jung

Filed: November 10, 2000

For: METHOD AND APPARATUS FOR CHARACTERIZATION OF DISTURBERS  
IN COMMUNICATION SYSTEMS

COPY of PTO-1449 filed on September 28, 2001 with new markings to show changes made and including 16 of the listed references as requested by Examiner in Office Action dated July 19, 2004.

Please type a plus sign (+) inside this box



Approved through 10/31/99. OMB 0651-0031  
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

|  |  |                          |                                 |
|--|--|--------------------------|---------------------------------|
| Substitute For Form 1449A/PTO<br>(Modified 5-19-2000)<br><br><b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br><br>(use as many sheets as necessary) |  | <i>Complete if Known</i> |                                 |
|  |  | Application No           | 09/710,718                      |
|  |  | Filing Date              | November 10, 2000               |
|  |  | First Named Inventor     | Cecilia Gabriela Galarza et al. |
|  |  | Group Art Unit           | 2631                            |
|  |  | Examiner Name            | Unassigned                      |
| Sheet 4 of 9   |  | Attorney Docket Number   | 001340.P077                     |

### U.S. PATENT DOCUMENTS

| Examiner Initials* | U.S. Patent Document Number | Name of Patentee or Applicant of Cited Document | Date of Publication Cited Document MM-DD-YYYY | Filing date if Appropriate |
|--------------------|-----------------------------|---|---|----------------------------|
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |

### FOREIGN PATENT DOCUMENTS

| Examiner Initials* | Foreign Patent Document |        |      | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Translation? Yes/No |
|--------------------|-------------------------|--------|------|---|--|---------------------|
|                    | Office or Country       | Number | Date |   |  |                     |
|                    |                         |        |      |   |  |                     |
|                    |                         |        |      |   |  |                     |
|                    |                         |        |      |   |  |                     |
|                    |                         |        |      |   |  |                     |
|                    |                         |        |      |   |  |                     |

### OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)

| Examiner Initials* | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), publisher, city and/or country where published (if title of the item known). (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s). | Translation? Yes/No |
|--------------------|--|---------------------|
|                    | LENNART LJUNG, Prentice-Hall Information and System Sciences Series, "System Identification, Theory for the User", 1987, pp 141-163, 239-263.  | No                  |
|                    | <del>YAAKOV BAR-SHALOM et al., Artech House, Inc., "Estimation and Tracking: Principles, Techniques, and Software", 1999, pp 456-465.</del>  | No                  |
|                    | <del>International Telecommunication Union, ITU T Telecommunication Standardization Sector of ITU, G.810, "Definitions and Terminology for Synchronization Networks", August 1996, pp 1-20</del>   | No                  |
|                    | ADSL Forum Technical Report TR-024 for Network Management Working Group, "DMT Line Code Specific MIB", June 1999, pp 1-7   | No                  |

|          |                 |
|----------|-----------------|
| Examiner | Date Considered |
|----------|-----------------|

**EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

|                    |                 |
|--------------------|-----------------|
| Examiner Signature | Date Considered |
|--------------------|-----------------|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



Please type a plus sign (+) inside this box



PTO/SB/08A (10-96)

Approved through 10/31/99. OMB 0651-0031

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute For Form 1449A/PTO  
(Modified 5-19-2000)

NOV 19 2000

INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT

(use as many sheets as necessary)

## Complete if Known

|                        |                                 |
|------------------------|---------------------------------|
| Application No         | 09/710,718                      |
| Filing Date            | November 10, 2000               |
| First Named Inventor   | Cecilia Gabriela Galarza et al. |
| Group Art Unit         | 2631                            |
| Examiner Name          | Unassigned                      |
| Attorney Docket Number | 001340.P077                     |

Sheet 1 of 9

## U.S. PATENT DOCUMENTS

| Examiner Initials* | U.S. Patent Document Number | Name of Patentee or Applicant of Cited Document | Date of Publication Cited Document MM-DD-YYYY | Filing date if Appropriate |
|--------------------|-----------------------------|---|---|----------------------------|
|                    | 6,195,594                   | Shah et al.                                     | February 27, 2001                             | June 30, 1999              |
|                    | 5,880,959                   | Shah et al.                                     | March 9, 1999                                 | November 25, 1997          |
|                    | 6,230,062                   | Shah  | May 8, 2001                                   | June 30, 1999              |
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |

## FOREIGN PATENT DOCUMENTS

| Examiner Initials* | Foreign Patent Document       | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Translation? Yes/No |
|--------------------|-------------------------------|---|--|---------------------|
|                    | Office or Country Number Date |   |  |                     |
|                    |                               |   |  |                     |
|                    |                               |   |  |                     |
|                    |                               |   |  |                     |
|                    |                               |   |  |                     |
|                    |                               |   |  |                     |

## OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)

| Examiner Initials* | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), publisher, city and/or country where published (if title of the item known), (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s). | Translation? Yes/No |
|--------------------|--|---------------------|
|                    | LENNART LJUNG, IEEE Transactions on Automatic Control, Vol. AC-23, No. 5, October 1978, "Convergence Analysis of Parametric Identification Methods", pp 770-783.   | No                  |
|                    | <del>SERGIO VERDU, Cambridge University Press, "Multisensor Detection", 1998, pp 1-26, 56-66, 134-175, 384-387.</del>  | No                  |
|                    | GUANGHAN XU et al., IEEE Transactions on Signal Processing, Vol. 43, No. 12, December 1995, "A Least Squares Approach to Blind Channel Identification", pp 2982-2993.  | No                  |
|                    | ALEXANDRA DUEL-HALLEN et al., IEEE Transactions on Communications, Vol. 37, No. 5, May 1989, "Delayed Decision-Feedback Sequence Estimation", pp 428-436.  | No                  |

Examiner

Date Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Please type a plus sign (+) inside this box



PTO/SB/08A (10-96)

Approved through 10/31/99. OMB 0651-0031

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.



|   |             |  |  |
|---|-------------|--|--|
| Substitute For Form 1099/PTO<br>(Modified 5-19-2000)<br><br><b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br><br>(use as many sheets as necessary) |             | Complete if Known<br>Application No <b>09/710,718</b><br>Filing Date <b>November 10, 2000</b><br>First Named Inventor <b>Cecilia Gabriela Galarza et al.</b><br>Group Art Unit <b>2631</b><br>Examiner Name <b>Unassigned</b><br>Attorney Docket Number <b>001340.P077</b> |  |
| Sheet <b>2</b>  | of <b>9</b> |  |  |

**U.S. PATENT DOCUMENTS**

| Examiner<br>Initials* | U.S. Patent Document<br>Number | Name of Patentee or Applicant<br>of Cited Document | Date of Publication<br>Cited Document<br>MM-DD-YYYY | Filing date if Appropriate |
|-----------------------|--------------------------------|--|---|----------------------------|
|                       |                                |  |   |                            |
|                       |                                |  |   |                            |
|                       |                                |  |   |                            |
|                       |                                |  |   |                            |
|                       |                                |  |   |                            |
|                       |                                |  |   |                            |
|                       |                                |  |   |                            |

**FOREIGN PATENT DOCUMENTS**

| Examiner<br>Initials* | Foreign Patent Document |        |      | Name of Patentee or Applicant<br>of Cited Document | Date of Publication of<br>Cited Document<br>MM-DD-YYYY | Translation?<br>Yes/No |
|-----------------------|-------------------------|--------|------|--|--|------------------------|
|                       | Office or Country       | Number | Date |  |  |                        |
|                       |                         |        |      |  |  |                        |
|                       |                         |        |      |  |  |                        |
|                       |                         |        |      |  |  |                        |
|                       |                         |        |      |  |  |                        |
|                       |                         |        |      |  |  |                        |

**OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)**

| Examiner<br>Initials* | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), publisher, city and/or country where published (if title of the item known). (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s). | Translation?<br>Yes/No |
|-----------------------|--|------------------------|
|                       | K. GIRIDHAR et al., IEEE Transactions on Communications, Vol. 45, No. 4, April 1997, "Nonlinear Techniques for the Joint Estimation of Cochannel Signals", pp 473-484.   | No                     |
|                       | LANG TONG et al., IEEE Transactions on Signal Processing, Vol. 47, No. 9, September 1999, "Joint Order Detection and Blind Channel Estimation by Least Squares Smoothing", pp 2345-2355  | No                     |
|                       | ERIC MOULINES et al., IEEE Transactions on Signal Processing, Vol. 43, No. 2, February 1995, "Subspace Methods for the Blind Identification of Multichannel FIR Filters", pp 516-525.  | No                     |
|                       | ALEXANDRA DUEL-HALLEN et al., IEEE Personal Communications, April 1995, "Multiuser Detection for CDMA Systems", pp 46-58.  | No                     |

|          |                 |
|----------|-----------------|
| Examiner | Date Considered |
|----------|-----------------|

**EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

|                       |                    |
|-----------------------|--------------------|
| Examiner<br>Signature | Date<br>Considered |
|-----------------------|--------------------|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



Please type a plus sign (+) inside this box



PTO/SB/08A (10-96)

Approved: a through 10/31/99. OMB 0651-0031

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute For Form 1349A/PTO  
(Modified 5-19-2000)

Complete if Known

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

|                        |                                 |
|------------------------|---------------------------------|
| Application No         | 09/710,718                      |
| Filing Date            | November 10, 2000               |
| First Named Inventor   | Cecilia Gabriela Galarza et al. |
| Group Art Unit         | 2631                            |
| Examiner Name          | Unassigned                      |
| Attorney Docket Number | 001340.P077                     |

Sheet 3 of 9

**U.S. PATENT DOCUMENTS**

| Examiner<br>Initials* | U.S. Patent Document<br>Number | Name of Patentee or Applicant<br>of Cited Document | Date of Publication<br>Cited Document<br>MM-DD-YYYY | Filing date if Appropriate |
|-----------------------|--------------------------------|--|---|----------------------------|
|                       |                                |  |   |                            |
|                       |                                |  |   |                            |
|                       |                                |  |   |                            |
|                       |                                |  |   |                            |
|                       |                                |  |   |                            |
|                       |                                |  |   |                            |
|                       |                                |  |   |                            |

**FOREIGN PATENT DOCUMENTS**

| Examiner<br>Initials* | Foreign Patent Document |        |      | Name of Patentee or Applicant<br>of Cited Document | Date of Publication of<br>Cited Document<br>MM-DD-YYYY | Translation?<br>Yes/No |
|-----------------------|-------------------------|--------|------|--|--|------------------------|
|                       | Office or Country       | Number | Date |  |  |                        |
|                       |                         |        |      |  |  |                        |
|                       |                         |        |      |  |  |                        |
|                       |                         |        |      |  |  |                        |
|                       |                         |        |      |  |  |                        |

**OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)**

| Examiner<br>Initials* | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), publisher, city and/or country where published (if title of the item known). (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s). | Translation?<br>Yes/No |
|-----------------------|--|------------------------|
|                       | UPAMANYU MADHOW et al., IEEE Transactions on Communications, Vol. 42, No. 12, December 1994, "MMSE Interference Suppression for Direct-Sequence Spread-Spectrum CDMA" pp 3178-3188   | No                     |
|                       | <del>C. RICHARD JOHNSON, JR. et al., Proceedings of the IEEE, Vol. 86, No. 10, October 1998, "Blind Equalization Using the Constant Modulus Criterion: A Review", pp 1927-1950</del>   | No                     |
|                       | P. CIBLAT et al., "Asymptotic Analysis of Blind Cyclic Correlation Based Symbol Rate Estimation", September 2000   | No                     |
|                       | <del>DR. DENNIS J. RAUSCHMAYER, Macmillan Technology Series, "ADSL VDSL Principles", 1999, pp 131-155.</del>   | No                     |

Examiner Date Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

|                       |  |                    |  |
|-----------------------|--|--------------------|--|
| Examiner<br>Signature |  | Date<br>Considered |  |
|-----------------------|--|--------------------|--|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Please type a plus sign (+) inside this box



PTO/SB/08A (10-96)

Approved for use through 10/31/99. OMB 0651-0031

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

|   |  |   |  |                            |
|---|--|---|--|----------------------------|
| Substitute For Form 1419A/PTO 081<br>(Modified 5-19-2000)   |  | Complete if Known                               |  |                            |
| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br><br>(use as many sheets as necessary)   |  | Application No                                  | 09/710,718                                       |                            |
|   |  | Filing Date                                     | November 10, 2000                                |                            |
|   |  | First Named Inventor                            | Cecilia Gabriela Galarza et al.                  |                            |
|   |  | Group Art Unit                                  | 2631   |                            |
|   |  | Examiner Name                                   | Unassigned                                       |                            |
| Sheet 5 of 9  | Attorney Docket Number   | 001340.P077                                     |  |                            |
| <b>U.S. PATENT DOCUMENTS</b>  |  |   |  |                            |
| Examiner Initials*  | U.S. Patent Document Number  | Name of Patentee or Applicant of Cited Document | Date of Publication Cited Document MM-DD-YYYY    | Filing date if Appropriate |
|   |  |   |  |                            |
|   |  |   |  |                            |
|   |  |   |  |                            |
|   |  |   |  |                            |
|   |  |   |  |                            |
|   |  |   |  |                            |
|   |  |   |  |                            |
|   |  |   |  |                            |
|   |  |   |  |                            |
| <b>FOREIGN PATENT DOCUMENTS</b>   |  |   |  |                            |
| Examiner Initials*  | Foreign Patent Document  | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Translation? Yes/No        |
|   | Office or Country      Number      Date  |   |  |                            |
|   |  |   |  |                            |
|   |  |   |  |                            |
|   |  |   |  |                            |
|   |  |   |  |                            |
|   |  |   |  |                            |
|   |  |   |  |                            |
| <b>OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)</b>   |  |   |  |                            |
| Examiner Initials*  | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), publisher, city and/or country where published (if title of the item known). (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s). | Translation? Yes/No                             |  |                            |
|   | J. CIOFFI, EEE379A, "Digital Communication: Signal Processing Class notes, Stanford University, pp 167-174, 194-197.   | No  |  |                            |
|   | ARTHUR GELB et al., The Analytic Sciences Corporation, "Applied Optimal Estimation", 1974, pp 156-179.   | No  |  |                            |
|   | SIMON HAYKIN, Prentice Hall Information and System Sciences Series, "Adaptive Filter Theory", Third Edition, 1996, pp 772-815.   | No  |  |                            |
|   | IAN R. PETERSEN et al., Control Engineering, "Robust Kalman Filtering for Signal and Systems with Large Uncertainties", 1999, pp 35-55.  | No  |  |                            |
| Examiner  | Date Considered  |   |  |                            |
| <b>EXAMINER:</b> Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. |  |   |  |                            |

|                    |  |                 |  |
|--------------------|--|-----------------|--|
| Examiner Signature |  | Date Considered |  |
|--------------------|--|-----------------|--|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Please type a plus sign (+) inside this box



PTO/SB/08A (10-96)

Approved through 10/31/99. OMB 0651-0031

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute For Form 1449A/PTO  
(Modified 5-19-2000)

NOV 19 2000

INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT

(use as many sheets as necessary)

Complete if Known

|                        |                                 |
|------------------------|---------------------------------|
| Application No         | 09/710,718                      |
| Filing Date            | November 10, 2000               |
| First Named Inventor   | Cecilia Gabriela Galarza et al. |
| Group Art Unit         | 2631                            |
| Examiner Name          | Unassigned                      |
| Attorney Docket Number | 001340.P077                     |

Sheet 6 of 9

### U.S. PATENT DOCUMENTS

| Examiner Initials* | U.S. Patent Document Number | Name of Patentee or Applicant of Cited Document | Date of Publication Cited Document MM-DD-YYYY | Filing date if Appropriate |
|--------------------|-----------------------------|---|---|----------------------------|
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |

### FOREIGN PATENT DOCUMENTS

| Examiner Initials* | Foreign Patent Document |        |      | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Translation? Yes/No |
|--------------------|-------------------------|--------|------|---|--|---------------------|
|                    | Office or Country       | Number | Date |   |  |                     |
|                    |                         |        |      |   |  |                     |
|                    |                         |        |      |   |  |                     |
|                    |                         |        |      |   |  |                     |
|                    |                         |        |      |   |  |                     |
|                    |                         |        |      |   |  |                     |

### OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)

| Examiner Initials* | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), publisher, city and/or country where published (if title of the item known). (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s). | Translation? Yes/No |
|--------------------|--|---------------------|
|                    | STEPHEN BOYD et al., "Convex Optimization", Course Reader for EE364: Introduction to Convex Optimization with Engineering Applications, Stanford University, Winter Quarter 1996-1997, pp 1-146.   | No                  |
|                    | AMIT MATHUR, Dissertation from Electrical and Computer Engineering, University of California, Santa Barbara, "Algorithms for Cochannel Source Separation and Signal Estimation", December 1996, pp 1-166.  | No x-xiv<br>139-142 |
|                    | EDWARD A. LEE et al., Kluwer Academic Publishers, "Digital Communication", Second Edition, 1994, pp 408-424, 468-486.  | No                  |
|                    | THOMAS STARR et al., Prentice Hall, Communication Engineering and Emerging Technologies, "Understanding Digital Subscriber Line Technology", 1999, pp 297-354.   |                     |

Examiner

Date Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Examiner Signature

Date

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Please type a plus sign (+) inside this box



PTO/SB/08A (10-96)

Approved e through 10/31/99. OMB 0651-0031

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

|   |  |                                 |  |
|---|--|---------------------------------|--|
| Substitute For Form 1449 PTO JCB7<br>(Modified 5-19-2000)<br>NOV 19 2004<br><b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>(use as many sheets as necessary) |  | <b>Complete if Known</b>        |  |
| Application No  |  | 09/710,718                      |  |
| Filing Date   |  | November 10, 2000               |  |
| First Named Inventor  |  | Cecilia Gabriela Galarza et al. |  |
| Group Art Unit  |  | 2631                            |  |
| Examiner Name   |  | Unassigned                      |  |
| Attorney Docket Number  |  | 001340.P077                     |  |
| Sheet 7 of 9  |  |                                 |  |

### U.S. PATENT DOCUMENTS

| Examiner Initials* | U.S. Patent Document Number | Name of Patentee or Applicant of Cited Document | Date of Publication Cited Document MM-DD-YYYY | Filing date if Appropriate |
|--------------------|-----------------------------|---|---|----------------------------|
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |
|                    |                             |   |   |                            |

### FOREIGN PATENT DOCUMENTS

| Examiner Initials* | Foreign Patent Document |        |      | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Translation? Yes/No |
|--------------------|-------------------------|--------|------|---|--|---------------------|
|                    | Office or Country       | Number | Date |   |  |                     |
|                    |                         |        |      |   |  |                     |
|                    |                         |        |      |   |  |                     |
|                    |                         |        |      |   |  |                     |
|                    |                         |        |      |   |  |                     |
|                    |                         |        |      |   |  |                     |

### OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)

| Examiner Initials* | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), publisher, city and/or country where published (if title of the item known). (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s). | Translation? Yes/No |
|--------------------|--|---------------------|
|                    | D. GODARD, IEEE Transaction Communications, Vol. COM-28, No. 11, November 1980, "Self-Recovering Equalization and Carrier Tracking in Two-Dimensional Data Communication Systems, pp 1867-1875.  | No                  |
|                    | LENNART LJUNG, PTP Prentice Hall Information and System Sciences Series, "System Identification, Theory for the User", Second Edition, 1980, pp 79-139, 197-279, 317-360.  | No                  |
|                    | RAUL A. GASAS et al., Broadcasting & Cable, "Current Approaches to Blind Decision Feedback Equalization", August 1999, pp 1-62.  | No                  |
|                    | JOHN G. PROAKIS, McGraw Hill Series in Electrical and Computer Engineering, "Digital Communications, Third Edition, 1996, pp 267-286.  | No                  |

|          |                 |
|----------|-----------------|
| Examiner | Date Considered |
|----------|-----------------|

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

|                    |                 |
|--------------------|-----------------|
| Examiner Signature | Date Considered |
|--------------------|-----------------|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.





|   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 | 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 | 208 | 209 | 210 | 211 | 212 | 213 | 214 | 215 | 216 | 217 | 218 | 219 | 220 | 221 | 222 | 223 | 224 | 225 | 226 | 227 | 228 | 229 | 230 | 231 | 232 | 233 | 234 | 235 | 236 | 237 | 238 | 239 | 240 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 | 256 | 257 | 258 | 259 | 260 | 261 | 262 | 263 | 264 | 265 | 266 | 267 | 268 | 269 | 270 | 271 | 272 | 273 | 274 | 275 | 276 | 277 | 278 | 279 | 280 | 281 | 282 | 283 | 284 | 285 | 286 | 287 | 288 | 289 | 290 | 291 | 292 | 293 | 294 | 295 | 296 | 297 | 298 | 299 | 300 | 301 | 302 | 303 | 304 | 305 | 306 | 307 | 308 | 309 | 310 | 311 | 312 | 313 | 314 | 315 | 316 | 317 | 318 | 319 | 320 | 321 | 322 | 323 | 324 | 325 | 326 | 327 | 328 | 329 | 330 | 331 | 332 | 333 | 334 | 335 | 336 | 337 | 338 | 339 | 340 | 341 | 342 | 343 | 344 | 345 | 346 | 347 | 348 | 349 | 350 | 351 | 352 | 353 | 354 | 355 | 356 | 357 | 358 | 359 | 360 | 361 | 362 | 363 | 364 | 365 | 366 | 367 | 368 | 369 | 370 | 371 | 372 | 373 | 374 | 375 | 376 | 377 | 378 | 379 | 380 | 381 | 382 | 383 | 384 | 385 | 386 | 387 | 388 | 389 | 390 | 391 | 392 | 393 | 394 | 395 | 396 | 397 | 398 | 399 | 400 | 401 | 402 | 403 | 404 | 405 | 406 | 407 | 408 | 409 | 410 | 411 | 412 | 413 | 414 | 415 | 416 | 417 | 418 | 419 | 420 | 421 | 422 | 423 | 424 | 425 | 426 | 427 | 428 | 429 | 430 | 431 | 432 | 433 | 434 | 435 | 436 | 437 | 438 | 439 | 440 | 441 | 442 | 443 | 444 | 445 | 446 | 447 | 448 | 449 | 450 | 451 | 452 | 453 | 454 | 455 | 456 | 457 | 458 | 459 | 460 | 461 | 462 | 463 | 464 | 465 | 466 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

+

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

NOV 19 2004  
DISCLOSURE  
APPLICANT

*(use as many sheets as necessary)*

**Complete if Known**

Application No

09/710.610

**Filing Date**

**November 10, 2000**

**First Named Inventor**

Tom Pare et al.

### Group Art Unit

2121

Examiner Name

**Unassigned**

Attorney Docket Number

001340.P078

Sheet 8 of 9

## U.S. PATENT DOCUMENTS

[illegible]

## FOREIGN PATENT DOCUMENTS

| Examiner<br>Initials* |  | Foreign Patent Document |        |      | Name of Patentee or Applicant<br>of Cited Document | Date of Publication of<br>Cited Document<br>MM-DD-YYYY | Translation?<br>Yes/No |
|-----------------------|--|-------------------------|--------|------|--|--|------------------------|
|                       |  | Office or Country       | Number | Date |  |  |                        |
|                       |  |                         |        |      |  |  |                        |
|                       |  |                         |        |      |  |  |                        |
|                       |  |                         |        |      |  |  |                        |
|                       |  |                         |        |      |  |  |                        |

**OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)**

| Examiner Initials* |  | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), publisher, city and/or country where published (if title of the item known). (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s).  | Translation? Yes/No |
|--------------------|--|---|---------------------|
|                    |  | CRAIG MICHAEL TEUSCHER, Dissertation submitted as requirement for the degree of Dr. of Philosophy in Engineering-Electrical Engineering and Computer Sciences, "Low Power Receiver Design for Portable RF Applications: Design and Implementation of an Adaptive Multiuser Detector for an Indoor, Wideband CDMA Application, Fall 1998, pp 37, 43-52 | No                  |
|                    |  | CLAES TIDESTAV et al., Signals and Systems, Uppsala University, "Realizable MIMO Decision Feedback Equalizers", International Conference on Acoustics, Speech, and Signal Processing (ICASSP99) March 1999, Phoenix, AZ, V.5, pp 2591-2594.   | No                  |

Examiner

**Date Considered**

**EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

|                       |  |                    |  |
|-----------------------|--|--------------------|--|
| Examiner<br>Signature |  | Date<br>Considered |  |
|-----------------------|--|--------------------|--|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

+

Please type a plus sign (+) inside this box



PTO/SB/08A (10-96)

Approved . . . through 10/31/99. OMB 0651-0031

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

|   |  |                        |                                 |  |
|---|--|------------------------|---------------------------------|--|
| Substitute For Form 1449 (Modified 5-19-2000)<br><br><b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b><br><br><i>(use as many sheets as necessary)</i> |  | Complete if Known      |                                 |  |
|   |  | Application No         | 09/710,718                      |  |
|   |  | Filing Date            | November 10, 2000               |  |
|   |  | First Named Inventor   | Cecilia Gabriela Galarza et al. |  |
|   |  | Group Art Unit         | 2631                            |  |
|   |  | Examiner Name          | Unassigned                      |  |
| Sheet 9 of 9  |  | Attorney Docket Number | 001340.P077                     |  |

  

| U.S. PATENT DOCUMENTS |                             |   |   |                            |
|-----------------------|-----------------------------|---|---|----------------------------|
| Examiner Initials*    | U.S. Patent Document Number | Name of Patentee or Applicant of Cited Document | Date of Publication Cited Document MM-DD-YYYY | Filing date if Appropriate |
|                       |                             |   |   |                            |
|                       |                             |   |   |                            |
|                       |                             |   |   |                            |
|                       |                             |   |   |                            |
|                       |                             |   |   |                            |
|                       |                             |   |   |                            |
|                       |                             |   |   |                            |

  

| FOREIGN PATENT DOCUMENTS |                         |        |      |   |  |                     |
|--------------------------|-------------------------|--------|------|---|--|---------------------|
| Examiner Initials*       | Foreign Patent Document |        |      | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Translation? Yes/No |
|                          | Office or Country       | Number | Date |   |  |                     |
|                          |                         |        |      |   |  |                     |
|                          |                         |        |      |   |  |                     |
|                          |                         |        |      |   |  |                     |
|                          |                         |        |      |   |  |                     |

  

| OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.) |  |                     |
|--|--|---------------------|
| Examiner Initials*   | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), publisher, city and/or country where published (if title of the item known). (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s). | Translation? Yes/No |
|  | K. SAM SHANMUGAN et al., John Wiley & Sons, "Random Signals, Detection, Estimation and Data Analysis", 1988, pp 341-377.   | No                  |
|  | HARRY L. VAN TREES, Massachusetts Institute of Technology, "Detection, Estimation, and Modulation Theory", 1968, pp 10-163, 239-418.   |                     |
|  |  |                     |

  

|          |                 |
|----------|-----------------|
| Examiner | Date Considered |
|----------|-----------------|

  

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

|                    |  |                 |  |
|--------------------|--|-----------------|--|
| Examiner Signature |  | Date Considered |  |
|--------------------|--|-----------------|--|

conformance and not considered. Include copy of this form with next communication to applicant.

